

What is claimed is:

1. A power supply module having a primary winding coupled with secondary windings by a transformer, and
5 comprising:

a component-mounting layer on which the primary winding, the transformer, a primary side circuit, and a secondary side circuit are mounted;

a first inner layer on which a pattern of a first
10 secondary winding of the secondary windings drawn out in one direction is formed; and

a second inner layer on which a pattern of a second secondary winding of the secondary windings drawn out in the other direction is formed,

15 wherein an output pattern film of the second secondary winding is formed on the first inner layer, and an output pattern film of the first secondary winding is formed on the second inner layer.

20 2. The power supply module according to claim 1, further comprising:

a third inner layer on which a pair of ground films for the first and the second secondary windings is formed.

25 3. The power supply module according to claim 1, wherein, on the component-mounting layer, a secondary side circuit of the first secondary winding is disposed

on one side of the transformer, and a secondary side circuit of the second secondary winding is disposed on the other side of the transformer.

5 4. The power supply module according to claim 3, wherein the component-mounting layer comprises:

 a first component-mounting layer having a rectifier circuit for the secondary side circuit of the first secondary winding, being disposed on one side of the transformer, and a rectifier circuit for the secondary side
10 circuit of the second secondary winding, being disposed on the other side of the transformer; and

 a second component-mounting layer having a smoothing circuit for the secondary side circuit of the first
15 secondary winding, being disposed on one side of the transformer, and a smoothing circuit for the secondary side circuit of the second secondary winding, being disposed on the other side of the transformer.

20 5. The power supply module according to claim 2,

 wherein the secondary side circuit mounted on the component-mounting layer, the first secondary winding and the output pattern film formed on the first inner layer, the second secondary winding and the output pattern film
25 formed on the second inner layer, and the pair of ground films formed on the third inner layer are connected through vias.

6. The power supply module according to claim 1, wherein the rectifier circuit for the secondary side circuit mounted on the component-mounting layer comprises:

- 5 a switching element; and
- a switching control circuit.

7. The power supply module according to claim 1, further comprising:

- 10 an input terminal connected to the primary winding;
- and
- an output terminal connected to the output pattern film.

15 8. An electronic apparatus comprising:

- a power supply module having a primary winding coupled with a secondary winding by a transformer; and
- an electronic device operated by power supplied from the power supply module,

20 wherein the power supply module comprises:

- a component-mounting layer on which the primary winding, the transformer, a primary side circuit, and a secondary side circuit are mounted;

25 a first inner layer on which a pattern of a first secondary winding of the secondary windings drawn out in one direction is formed; and

- a second inner layer on which a pattern of a second

secondary winding of the secondary windings drawn out in the other direction is formed,

and wherein an output pattern film of the second secondary winding is formed on the first inner layer, and
5 an output pattern film of the first secondary winding is formed on the second inner layer.

9. The electronic apparatus according to claim 8,
wherein the power supply module further comprises:
10 a third inner layer on which a pair of ground films for the first and the second secondary winding is formed.

10. The electronic apparatus according to claim 8,
wherein the component-mounting layer of the power
15 supply module further comprises:

a secondary side circuit of the first secondary winding, being disposed on one side of the transformer, and a secondary side circuit of the second secondary winding, being disposed on the other side of the transformer.

20 11. The electronic apparatus according to claim 10,
wherein the component-mounting layer of the power supply module comprises:

a first component-mounting layer having a rectifier
25 circuit for the secondary side circuit of the first secondary winding, being disposed on one side of the transformer, and a rectifier circuit for the secondary side

circuit of the second secondary winding, being disposed on the other side of the transformer; and

a second component-mounting layer having a smoothing circuit for the secondary side circuit of the first
5 secondary winding, being disposed on one side of the transformer, and a smoothing circuit for the secondary side circuit of the second secondary winding, being disposed on the other side of the transformer.

10 12. The electronic apparatus according to claim 9,
wherein the power supply module further has via connections of the secondary side circuit mounted on the component-mounting layer, the first secondary winding and the output pattern film formed on the first inner layer,
15 the second secondary winding and the output pattern film formed on the second inner layer, and the pair of ground films formed on the third inner layer

13. The electronic apparatus according to claim 8,
20 wherein the rectifier circuit for the secondary side circuit mounted on the component-mounting layer of the power supply module comprises:

a switching element; and
a switching control circuit.

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14. The electronic apparatus according to claim 8,
wherein the power supply module further comprises:

an input terminal connected to the primary winding;
and
an output terminal connected to the output pattern
film.

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15. The electronic apparatus according to claim 8,
wherein further comprises:

a substrate for mounting the electronic device; and

a connector connecting the power supply module to the
10 substrate.